

INTERFERENCE EFFECTS IN NONLINEAR VIBRATIONAL SPECTROSCOPY FROM MULTILAYERED MATERIAL INTERFACES

DANIEL B. O'BRIEN, AARON M. MASSARI, *Chemistry Department, University of Minnesota, Minneapolis, MN, USA.*

Vibrational sum frequency generation spectroscopy (VSFG) is a popular approach to obtaining molecular information from the interfaces of liquids and submonolayer adsorbates. A new challenge becomes apparent when applying this ultrafast technique to thin films in which two interfaces are present in the focal volume of the experiment. Although the signal levels from these two interfaces can be adjusted to some extent by beam geometries, their overall interferences can remain significant. Rather than viewing this as a two-interface problem, we present experimental work from our group in which we utilize this interference as a tool to determine molecular information from both interfaces. In particular, we present data showing the influence of charge accumulation at a buried interface and the possibilities of using mixed beam polarizations to improve global data fitting.